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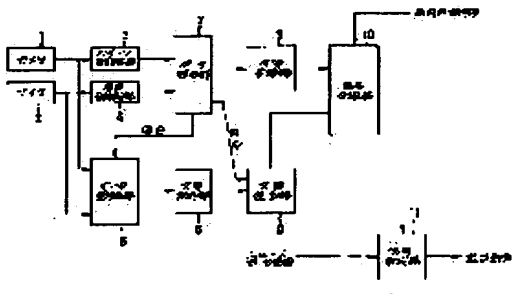
(54) NEWS TRANSMITTING DEVICE FOR AURALLY HANDICAPPED PERSON

(57)Abstract:
PURPOSE: To transmit in real time the detailed contents of news to the aurally handicapped persons with no hand language expert needed.
CONSTITUTION: A data register part 5 registers the lip patterns received from a camera 1 and the voice waveforms received from a microphone 2 before a news program is transmitted. A paragraph storing part 6 recognizes the contents registered in the part 5 and converts this recognition result into the paragraph information to store it. A data collating part 7 collates the contents of the part 5 with the lip pattern recognized by a pattern recognizing part 3 and the voice waveform recognized toy a voice recognizing part 4 respectively and controls a paragraph transmitting part 8 and a paragraph converting part 9 based on the collation results. A signal converter 10 converts the paragraph information received from both parts 8 and 9 into the broadcast signals. Then a signal synthesizer 11 superposes the broadcast signals converted by the converter 10 on the transmission screen of the news program and transmits these broadcast signals.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] Especially this invention relates to sending out of the news program in broadcast operation business about the news sending-out equipment for hearing-impaired persons.
[0002]
[Description of the Prior Art] Conventionally, in news sending out in a TV program, there are an approach of projecting the person who performs sign language in a corner of the television screen which displays announcer's etc. image, and the approach of using as an alphabetic character screen only the main point of the news prepared beforehand, and compounding on a television screen as a program for hearing-impaired persons.
[0003] In these approaches, although the method of projecting the person who performs sign language in a corner of a television screen chiefly on coincidence is used when transmitting the detailed contents of news to a hearing-impaired person, the expert of sign language is needed using this approach.
[0004] When it is going to transmit the detailed contents of news without the expert of sign language to a hearing-impaired person, the contents of the news are recognized using a voice recognition unit etc., and how to compound the recognition result on a television screen can be considered.
[0005] The approach of making a data input possible by recognizing a motion of an utterance person's opening like the technique indicated by JP,1-230123,A as a voice recognition unit which can be used by the above-mentioned approach, the method of associating an utterance person's voice and lips configuration like the technique indicated by JP,1-259414,A, and performing speech recognition, etc. are proposed.
[0006] Moreover, the method of recognizing voice like the technique indicated by JP,1-259414,A by adding the information by correlation with an utterance sound and a motion of opening using the information processing technique is also proposed.
[0007]
[Problem(s) to be Solved by the Invention] In news sending out in the conventional TV program mentioned above, since the contents of news are transmitted to the hearing-impaired person by using the approach of using as an alphabetic character screen only the main point of the method of projecting the person who performs sign language in a corner of a television screen on coincidence, or news, and compounding on a television screen, while needing the expert of sign language, if there is not an expert of sign language, only the main point of news can be transmitted.
[0008] In order to solve this, displaying the contents which used the above-mentioned voice recognition unit and have been recognized from an utterance person's voice and lips configuration on a television screen is also considered, but since high-speed processing is needed for the speech recognition, it is difficult to generate the alphabetic character screen which should be displayed with the image of a television screen on real time.
[0009] Then, it is in the purpose of this invention offering the news sending-out equipment for

the hearing-impaired persons who can transmit the detailed contents of news to real time to a hearing-impaired person, without canceling the above-mentioned trouble and needing the expert of sign language.

[0010]

[Means for Solving the Problem] The 1st news sending-out equipment for trouble back tone by this invention A collating means to collate whether it is in the lips pattern with which lips pattern and voice of the utterance person who reads out the contents of news were beforehand registered at the time of news sending out, and voice, The 1st recognition means which recognizes an utterance person's lips pattern and voice at the time of said news sending out, and acquires text, The 2nd recognition means which recognizes the lips pattern and voice which were registered beforehand, and acquires text, a conversion means to change one side into the signal for broadcast according to the collating result of said collating means among said 1st and 2nd recognition results of each recognition means, and a synthetic means to superimpose the conversion result of said conversion means on a news sending-out signal are provided.

[0011] The 2nd news sending-out equipment for hearing-impaired persons by this invention A photography means to photo an utterance person's lips pattern, and a collection means to collect said utterance person's voice, A registration means to register the voice wave by the lips pattern by said photography means, and said collection means, A preservation means to recognize said lips pattern registered into said registration means, and said voice wave, and to change and save at text, A lips pattern recognition means to recognize said lips pattern and to change into text, A collating means to collate a speech recognition means to recognize said voice wave and to change into text, and the lips pattern of the utterance person who reads out the contents of news at the time of news sending out, and a voice wave and the contents of said registration means, a conversion means to change one side into the signal for broadcast according to the collating result of said collating means among the contents of said lips pattern recognition means, and said recognition result of each speech recognition means and said preservation means, and a synthetic means to superimpose the conversion result of said conversion means on a news sending-out signal are provided.

[0012] The 3rd news sending-out equipment for hearing-impaired persons by this invention A lips pattern recognition means to recognize an utterance person's lips pattern and to change into text, with a speech recognition means to recognize said utterance person's voice and to change into text, and a registration means to register said lips pattern recognition means and said recognition result of each speech recognition means with a collating means to collate the contents of said lips pattern recognition means against lips pattern and voice of the utterance person who reads out the contents of news at the time of news sending out, and said recognition result of each speech recognition means and said registration means it has a conversion means to change one side into the signal for broadcast according to the collating result of said collating means among the contents of said lips pattern recognition means, and said recognition result of each speech recognition means and said registration means, and a synthetic means to superimpose the conversion result of said conversion means on a news sending-out signal.

[0013] The 4th news sending-out equipment for hearing-impaired persons by this invention A lips pattern recognition means to recognize an utterance person's lips pattern and to change into text, with a speech recognition means to recognize said utterance person's voice and to change into text, and a clause signal transduction means to change said lips pattern recognition means and said recognition result of each speech recognition means into clause information A collating means to collate the conversion result of a registration means to register the conversion result of said clause signal transduction means, and said clause signal transduction means against lips pattern and voice of the utterance person who reads out the contents of news at the time of news sending out, and the contents of said registration means, It has a signal transformation means to change one side into the signal for broadcast according to the collating result of said collating means among the conversion result of said clause signal transduction means, and the contents of said registration means, and a synthetic means to superimpose the conversion result of said signal transformation means on a news sending-out signal.

[0014] The 5th news sending-out equipment for hearing-impaired persons by this invention A

photography means to photo an utterance person's lips pattern, and a collection means to collect said utterance person's voice, A registration means to register the voice wave by the lips pattern by said photography means, and said collection means, A preservation means to recognize said lips pattern registered into said registration means, and said voice wave, and to change and save the recognition result to clause information, A lips pattern recognition means to recognize said lips pattern and to change into text, A collating means to collate a speech recognition means to recognize said voice wave and to change into text, and the lips pattern of the utterance person who reads out the contents of news at the time of news sending out, and a voice wave and the contents of said registration means, The 1st signal transformation means which changes the contents of said preservation means into the signal for broadcast when the collating result of said collating means shows coincidence, with a clause conversion means to change said lips pattern recognition means and said recognition result of each speech recognition means into clause information, when the collating result of said collating means shows an inequality it has the 2nd signal transformation means which changes the conversion result of said clause conversion means into said signal for broadcast, and a synthetic means to superimpose said 1st and 2nd conversion results of each signal transformation means on a news sending-out signal.

[0015] The 6th news sending-out equipment for hearing-impaired persons by this invention A lips pattern recognition means to recognize an utterance person's lips pattern and to change into text, with a speech recognition means to recognize said utterance person's voice and to change into text, and a registration means to register said lips pattern recognition means and said recognition result of each speech recognition means with a collating means to collate the contents of a preservation means to change and save the contents of said registration means to clause information, said lips pattern recognition means against lips pattern and voice of the utterance person who reads out the contents of news at the time of news sending out, and said recognition result of each speech recognition means and said registration means it has a conversion means to change one side into the signal for broadcast according to the collating result of said collating means among the contents of said lips pattern recognition means, and said recognition result of each speech recognition means and said preservation means, and a synthetic means to superimpose the conversion result of said conversion means on a news sending-out signal.

[0016]

[Function] The lips pattern of the utterance person at the time of the rehearsal before news program sending out and a voice wave are beforehand registered into the data registration section. At this time, pattern recognition and speech recognition are performed to the contents registered into the data registration section, and it is further changed into clause information, and is saved in the clause preservation section.

[0017] An utterance person's lips pattern and a voice wave are collated with the contents registered into the data registration section in the data collating section at the time of news sending out. Among the clause information saved in the clause preservation section according to this collating result, and the clause information which changed the pattern recognition result of an utterance person's lips pattern, and the audio speech recognition result, it is changed into the signal for broadcast with a signal converter, and with a signal composition vessel, the sending-out screen of a news program is overlapped on one side, and it is sent out to it.

[0018] By this, transfer on real time is attained to a hearing-impaired person in the detailed contents of news, without needing the expert of sign language.

[0019]

[Example] Next, this invention is explained with reference to a drawing.

[0020] Drawing 1 is the block diagram showing the configuration of one example of this invention. In drawing, the news sending-out equipment for hearing-impaired persons by one example of this invention consists of a camera 1, a microphone 2, the pattern recognition section 3, the speech recognition section 4, the data registration section 5, the clause preservation section 6, the data collating section 7, the clause sending-out section 8, a clause transducer 9, a signal converter 10, and a signal composition machine 11.

[0021] A camera 1 photos the lips pattern of utterance persons, such as announcer, and sends out the photoed lips pattern to the pattern recognition section 3 and the data registration section 5. A microphone 2 collects the voice of utterance persons, such as announcer, and sends out the collected voice waves to the speech recognition section 4 and the data registration section 5.
[0022] The pattern recognition section 3 performs pattern recognition to the lips pattern photoed with the camera 1, and outputs the text which it is as a result of the pattern recognition to the data collating section 7. The speech recognition section 4 performs speech recognition to the voice collected with the microphone 2, and outputs the text which it is as a result of the speech recognition to the data collating section 7.
[0023] The voice wave from the lips pattern and microphone 2 from a camera 1 is beforehand registered into the data registration section 5. The clause preservation section 6 performs pattern recognition and speech recognition to the lips pattern and voice wave which were beforehand registered into the data registration section 5, respectively, and changes and saves the text which it is as a result of [the] recognition to clause information.
[0024] If the data collating section 7 performs collating with the voice wave by which speech recognition is carried out in the lips pattern and the speech recognition section 4 by which pattern recognition is carried out in the pattern recognition section 3, and the contents beforehand registered into the data registration section 5 and its they correspond, it will direct to send out the clause information saved in the clause sending-out section 8 at the clause preservation section 6.
[0025] On the other hand, if the data collating section 7 has inharmonious them, it will direct to change the result of the pattern recognition of the pattern recognition section 3, and the result of the speech recognition of the speech recognition section 4 into clause information to the clause transducer 9.
[0026] The clause sending-out section 8 sends out the clause information which answered directions from the data collating section 7, and was saved in the clause preservation section 6 to a signal converter 10. The clause transducer 9 answers directions from the data collating section 7, changes the result of the pattern recognition of the pattern recognition section 3, and the result of the speech recognition of the speech recognition section 4 into clause information, and sends them out to a signal converter 10.
[0027] A signal converter 10 changes the clause information from the clause sending-out section 8 and the clause transducer 9 into the signals for broadcast (NTSC signal etc.), and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0028] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0029] Actuation of one example of this invention is explained using this drawing 1 . First, when announcer etc. performs a rehearsal before sending out a news program, while photoing the lips pattern of utterance persons, such as announcer, with a camera 1, the voice of utterance persons, such as announcer, is collected with a microphone 2.
[0030] The voice collected with the microphone 2 as if the lips pattern photoed with the camera 1 is sent out to the pattern recognition section 3 and the data registration section 5 is sent out to the speech recognition section 4 and the data registration section 5.
[0031] The data registration section 5 registers the voice wave from the lips pattern and microphone 2 from a camera 1. At this time, the clause preservation section 6 performs pattern recognition and speech recognition to the lips pattern and voice wave which were registered into the data registration section 5, and changes and saves the text which it is as a result of [that] recognition to clause information.
[0032] If a microphone 2 collects the voice of utterance persons, such as announcer, while a camera 1 photos the lips pattern of utterance persons, such as announcer, at the time of sending out of a news program, the pattern recognition section 3 will perform pattern recognition to the lips pattern from a camera 1, and the speech recognition section 4 will perform speech recognition to the voice from a microphone 2.

[0033] If the data collating section 7 performs collating with the voice wave which carries out speech recognition in the lips pattern and the speech recognition section 4 which carry out pattern recognition in the pattern recognition section 3, and the contents of the data registration section 5 and its they correspond, it will direct to send out the clause information saved in the clause preservation section 6 to the clause sending-out section 8 to a signal converter 10.
[0034] The clause sending-out section 8 sends out the clause information which answered directions from the data collating section 7, and was saved in the clause preservation section 6 to a signal converter 10. A signal converter 10 changes the clause information from the clause sending-out section 8 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0035] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0036] On the other hand, the data collating section 7 will direct to change the result of the pattern recognition of the pattern recognition section 3, and the result of the speech recognition of the speech recognition section 4 into clause information to the clause transducer 9, if the voice wave which carries out speech recognition in the lips pattern and the speech recognition section 4 which carry out pattern recognition in the pattern recognition section 3, and the contents of the data registration section 5 are inharmonious (i.e., if it is different contents the time of the contents of news being rehearsals (for example, a news bulletin, relay broadcast, etc.)).
[0037] The clause transducer 9 answers directions from the data collating section 7, changes the result of the pattern recognition of the pattern recognition section 3, and the result of the speech recognition of the speech recognition section 4 into clause information, and sends them out to a signal converter 10. A signal converter 10 changes the clause information from the clause transducer 9 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0038] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0039] Drawing 2 is the block diagram showing the configuration of other examples of this invention. In drawing, the news sending-out equipment for hearing-impaired persons by other examples of this invention The result of the pattern recognition of the pattern recognition section 3 and the result of the speech recognition of the speech recognition section 4 are beforehand registered into the data registration section 12. Except having collated the recognition result of the pattern recognition section 3 and the speech recognition section 4, and the contents of the data registration section 12 in the data collating section 14, it has the same composition as one example of this invention shown in drawing 1 R> 1, and the same sign is given to the same component. Moreover, processing actuation of these same components is the same as that of one example of this invention.
[0040] Here, since the data collating section 14 only collates the text from the pattern recognition section 3 and the speech recognition section 4, and the text of the data registration section 12, processing actuation can be made into a high speed compared with the above-mentioned lips pattern and collating of a voice wave.
[0041] Moreover, since the clause preservation section 13 only changes into clause information the text registered into the data registration section 12, processing actuation can be made into a high speed like the data collating section 14.
[0042] Actuation of one example of this invention is explained using this drawing 2 . First, when announcer etc. performs a rehearsal before sending out a news program, while photoing the lips pattern of utterance persons, such as announcer, with a camera 1, the voice of utterance persons, such as announcer, is collected with a microphone 2.
[0043] The voice collected with the microphone 2 as if the lips pattern photoed with the camera 1 is sent out to the pattern recognition section 3 is sent out to the speech recognition section 4. The pattern recognition section 3 performs pattern recognition to the lips pattern from a camera

1, and sends out the recognition result to the data registration section 12 and the data collating section 14.
[0044] The speech recognition section 4 performs speech recognition to the voice from a microphone 2, and sends out the recognition result to the data registration section 12 and the data collating section 14.
[0045] The data registration section 12 registers beforehand the recognition result of the pattern recognition section 3 and the speech recognition section 4. At this time, the clause preservation section 13 changes and saves to clause information as a result of [of the pattern recognition section 3 registered into the data registration section 12, and the speech recognition section 4] recognition (i.e., the text which it is as a result of [that] recognition).
[0046] If a microphone 2 collects the voice of utterance persons, such as announcer, while a camera 1 photos the lips pattern of utterance persons, such as announcer, at the time of sending out of a news program, the pattern recognition section 3 will perform pattern recognition to the lips pattern from a camera 1, and the speech recognition section 4 will perform speech recognition to the voice from a microphone 2.
[0047] If the data collating section 14 performs collating with the recognition result of the pattern recognition section 3 and the speech recognition section 4, and the contents of the data registration section 12 and its they correspond, it will direct to send out the clause information saved in the clause preservation section 13 to the clause sending-out section 8 to a signal converter 10.
[0048] The clause sending-out section 8 sends out the clause information which answered directions from the data collating section 14, and was saved in the clause preservation section 13 to a signal converter 10. A signal converter 10 changes the clause information from the clause sending-out section 8 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0049] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0050] On the other hand, the data collating section 14 will direct to change the recognition result of the pattern recognition section 3 and the speech recognition section 4 into clause information to the clause transducer 9, if the recognition result of the pattern recognition section 3 and the speech recognition section 4 and the contents of the data registration section 12 are inharmonious (i.e., if it is different contents the time of the contents of news being rehearsals (for example, a news bulletin, relay broadcast, etc.)).
[0051] The clause transducer 9 answers directions from the data collating section 14, changes the recognition result of the pattern recognition section 3 and the speech recognition section 4 into clause information, and sends it out to a signal converter 10. A signal converter 10 changes the clause information from the clause transducer 9 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0052] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0053] Drawing 3 is the block diagram showing the configuration of another example of this invention. In drawing, the news sending-out equipment for hearing-impaired persons by another example of this invention The clause information changed into the clause registration section 16 by the clause transducer 15 is registered beforehand. Except having collated the head part of clause information and the contents of the clause registration section 16 which were changed by the clause transducer 15 in the data collating section 17, it has the same composition as one example of this invention shown in drawing 1 , and the same sign is given to the same component. Moreover, processing actuation of these same components is the same as that of one example of this invention.
[0054] Here, since the clause collating section 17 only collates the head part of the clause information from the clause transducer 15, and the clause information on the clause registration section 16, processing actuation can be made into a high speed compared with the above-

mentioned lips pattern and collating of a voice wave.
[0055] Actuation of one example of this invention is explained using this drawing 3 . First, when announcer etc. performs a rehearsal before sending out a news program, while photoing the lips pattern of utterance persons, such as announcer, with a camera 1, the voice of utterance persons, such as announcer, is collected with a microphone 2.
[0056] The voice collected with the microphone 2 as if the lips pattern photoed with the camera 1 is sent out to the pattern recognition section 3 is sent out to the speech recognition section 4. The pattern recognition section 3 performs pattern recognition to the lips pattern from a camera 1, and sends out the recognition result to the clause transducer 15.
[0057] The speech recognition section 4 performs speech recognition to the voice from a microphone 2, and sends out the recognition result to the clause transducer 15. The clause transducer 15 changes the recognition result of the pattern recognition section 3 and the speech recognition section 4 into clause information, and sends out the clause information to the clause registration section 16 and the clause collating section 17. The clause registration section 16 registers beforehand the clause information changed by the clause transducer 15.
[0058] If a microphone 2 collects the voice of utterance persons, such as announcer, while a camera 1 photos the lips pattern of utterance persons, such as announcer, at the time of sending out of a news program, the pattern recognition section 3 will perform pattern recognition to the lips pattern from a camera 1, and the speech recognition section 4 will perform speech recognition to the voice from a microphone 2.
[0059] The clause transducer 15 changes the recognition result of the pattern recognition section 3 and the speech recognition section 4 into clause information, and sends out the clause information to the clause collating section 17. If the clause collating section 17 performs collating with the head part of clause information and the contents of the clause registration section 16 which were changed by the clause transducer 15 and its they correspond, it will direct to send out the clause information registered into the clause registration section 16 to the clause sending-out section 8 to a signal converter 10.
[0060] The clause sending-out section 8 sends out the clause information which answered directions from the clause collating section 17, and was registered into the clause registration section 16 to a signal converter 10. A signal converter 10 changes the clause information from the clause sending-out section 8 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal.
[0061] The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0062] On the other hand, the clause collating section 17 sends out the clause information changed by the clause transducer 15 to a signal converter 10, if the head part of clause information and the contents of the clause registration section 16 which were changed by the clause transducer 15 are inharmonious (i.e., if the times of the contents of news being rehearsals are different contents (for example, a news bulletin, relay broadcast, etc.)).
[0063] A signal converter 10 changes the clause information from the clause collating section 17 into the signal for broadcast, and outputs it to the signal composition machine 11 according to an office synchronizing signal. The signal composition machine 11 superimposes the signal for broadcast changed into the screen in which announcer etc. was reflected, i.e., the screen sent out in a news program, with the signal converter 10, and sends this out as a sending-out screen.
[0064] Thus, an utterance person's voice wave which lips pattern and microphone 2 of the utterance person whom the camera 1 photoed collected is beforehand registered into the data registration section 5. The voice wave which carries out speech recognition in the lips pattern and the speech recognition section 4 which carry out pattern recognition to the contents registered into the data registration section 5 at the time of sending out of a news program in the pattern recognition section 3 is collated in the data collating section 7. By changing one side into the signal for broadcast with a signal converter 10 among the clause information saved in the clause preservation section 6 according to the collating result, and the clause information changed by the clause transducer 9, and superimposing on a news sending-out signal with the

signal composition vessel 11 The detailed contents of news can be transmitted to real time to a hearing-impaired person, without needing the expert of sign language.
[0065] Moreover, the recognition result of the pattern recognition section 3 to an utterance person's lips pattern which the camera 1 photoed, and the recognition result of the speech recognition section 4 to the voice of the utterance person whom the microphone 2 received are beforehand registered into the data registration section 12. The recognition result of the contents registered into the data registration section 12 at the time of sending out of a news program and the pattern recognition section 3 and the recognition result of the speech recognition section 4 are collated in the data collating section 14. Also when one side is changed into the signal for broadcast with a signal converter 10 among the clause information saved in the clause preservation section 13 according to the collating result, and the clause information changed by the clause transducer 9 and it superimposes on a news sending-out signal with the signal composition vessel 11 The detailed contents of news can be transmitted to real time to a hearing-impaired person like the above, without needing the expert of sign language.
[0066] Furthermore, the clause information which changed the recognition result of the pattern recognition section 3 to an utterance person's lips pattern and the recognition result of the speech recognition section 4 to an utterance person's voice by the clause transducer 15 is beforehand registered into the clause registration section 16. The contents registered into the clause registration section 16 at the time of sending out of a news program and the head part of the clause information changed by the clause transducer 15 are collated in the clause collating section 17. Also when one side is changed into the signal for broadcast with a signal converter 10 among the clause information registered into the clause registration section 16 according to the collating result, and the clause information changed by the clause transducer 15 and it superimposes on a news sending-out signal with the signal composition vessel 11 The detailed contents of news can be transmitted to real time to a hearing-impaired person like the above, without needing the expert of sign language.
[0067]
[Effect of the Invention] As explained above, according to the news sending-out equipment for hearing-impaired persons of this invention The lips pattern and voice which were beforehand registered with an utterance person's lips pattern and voice at the time of news sending out are collated. By changing one side into the signal for broadcast among the text which recognizes and obtained the text which recognizes and obtained an utterance person's lips pattern and voice at the time of news sending out according to the collating result, the lips pattern registered beforehand, and voice, and superimposing on a news sending-out signal It is effective in the ability to transmit the detailed contents of news to real time to a hearing-impaired person, without needing the expert of sign language.
[0068] Moreover, while registering an utterance person's lips pattern, and a voice wave, respectively according to other news sending-out equipments for hearing-impaired persons of this invention The text which recognizes and acquired the lips pattern and a voice wave is saved. The lips pattern of the utterance person who reads out the contents of news at the time of news sending out and a voice wave, the registered lips pattern, and a voice wave are collated. By changing one side into the signal for broadcast among a lips pattern and an audio recognition result, and the saved text according to the collating result, and superimposing on a news sending-out signal It is effective in the ability to transmit the detailed contents of news to real time to a hearing-impaired person, without needing the expert of sign language.
[0069] Furthermore, according to another news sending-out equipment for hearing-impaired persons of this invention, recognize an utterance person's lips pattern, and an utterance person's voice, respectively, change into text, and it registers, respectively. The lips pattern of the utterance person who reads out the contents of news at the time of news sending out and an audio recognition result, and the registered text are collated. By changing one side into the signal for broadcast among a lips pattern and an audio recognition result, and the registered text according to the collating result, and superimposing on a news sending-out signal It is effective in the ability to transmit the detailed contents of news to real time to a hearing-impaired person, without needing the expert of sign language.

[0070] According to still more nearly another news sending-out equipment for hearing-impaired persons of this invention, further again Change into clause information the text which has recognized an utterance person's lips pattern, and an utterance person's voice, respectively, and obtained them, and it is registered, respectively. The clause information which changed and obtained the lips pattern of the utterance person who reads out the contents of news, and the audio recognition result at the time of news sending out, and the registered clause information are collated. By changing one side into the signal for broadcast among the clause information which changed and obtained the lips pattern and the audio recognition result according to the collating result, and the registered clause information, and superimposing on a news sending-out signal It is effective in the ability to transmit the detailed contents of news to real time to a hearing-impaired person, without needing the expert of sign language.

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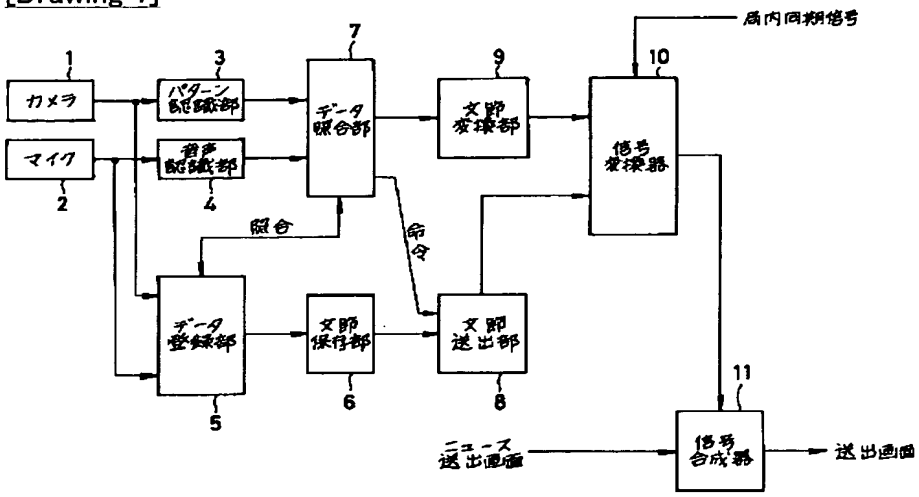
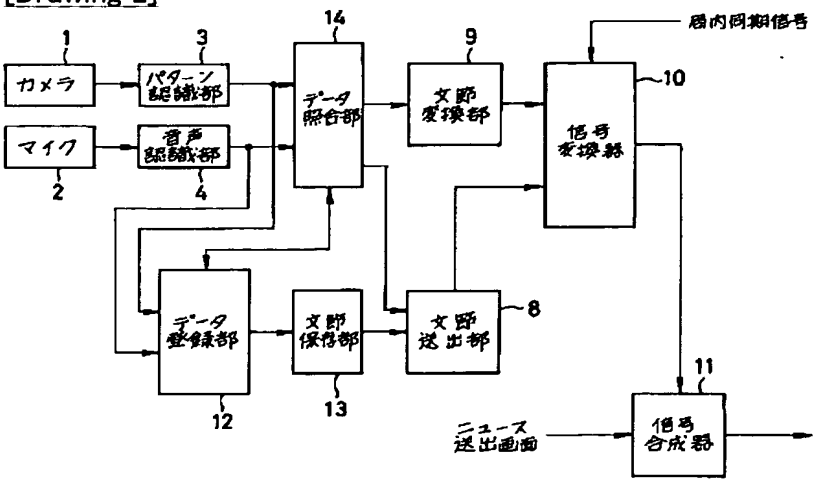
DRAWINGS

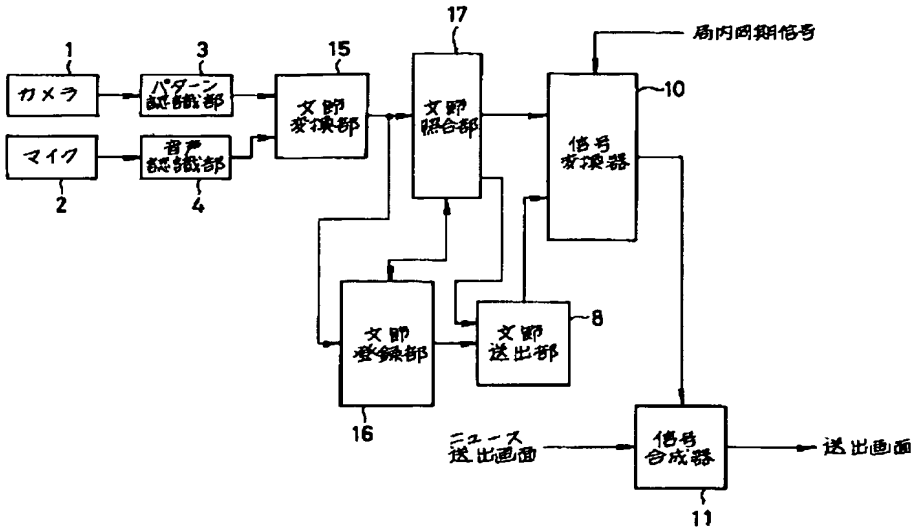
[Drawing 1]



[Drawing 2]



[Drawing 3]



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